Attachment A – Data Center Co-location Requirements

1. Scope
This document defines KSDE's data center facilities requirements for reference in the Request for Proposal (RFP) for a Co-location Services Vendor (CSV). This document defines facilities requirements to house and maintain the security, integrity and functionality of the existing KSDE data center and its estimated growth projections.

2. General Information
The KSDE self-managed onsite data center facility is a physically controlled, direct-access facility which houses and maintains mission and business critical information, data, IT equipment, applications, et al. The data center is the hub of KSDE's information and network services/resources which comprise a tier 3, self-managed, reliable and secure infrastructure environment for IT operations and services. These include provisioning services; managing, monitoring, and recovery of enterprise architecture environments; data storage; data exchange; and network services.

3. Physical Space Specifications and Requirements
The CSV must provide for KSDE data center physical space which complies with ANSI TIA-942 tier 3 data center architectural, electrical, mechanical requirements as well as the National Fire Protection Association standard NFPA 7S – "Standard for the Protection of Information Technology Equipment" as specified in the current standards described in the State of Kansas Publication entitled, "Kansas Information Technology Architecture, Version 11.2, July 2009". Environmental class A2[1] requirements must also be met. At a minimum, the data center must conform to the following architecture component standards:

3.1. Proximity, Architectural and Structural Requirements

3.1.1. Proximity of Data Center must be within the Topeka area. Preference would be given to any vendors within a 5 miles radius of KSDE Topeka offices and will have no-cost parking which may be used by KSDE IT staff.

3.1.2. CSVs primary site must be within the USA, with no off-shore transport or subcontracting for these facilities

3.1.3. Minimum allowable floor load of 150+ pounds per square foot for the floor on which data center resides

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[1] 2011 Thermal Guidelines for Data Processing Environments – Expanded Data Center Classes and Usage Guidance, American Society of Heating, Refrigerating and Air-Conditioning Engineers Inc. (ASHRAE) Technical Committee (TC) 9.9

3.1.4. 1000 square feet will be made available with the ability to expand as needed

3.1.5. There will be no exterior data center windows

3.1.6. Open ceiling will be void or will consist of data-center approved interior ceiling tiles

3.1.7. Interior floor will consist of static-resistant carpet or vinyl composition tile

3.1.8. The site will accommodate hot aisle formation to maximize airflow efficiency

3.2. Electrical Systems Requirements

3.2.1. Adequate scalable primary, operational, and secondary (UPS) power capacity engineered to support 80 initial watts/foot with 150+ ultimate watts/foot, is required; adequate scalable standby (generator) power capacity is strongly preferred

3.2.2. Adequate electrical supply for equipment racks which support 110v 20A Circuit ("A side, B side"), 110V 30A Circuit ("A side, B side"), 208V 20A Circuit ("A side, B side"), and/or 208V 30A Circuit ("A side, B side)

3.2.3. A minimum of one (1) fourplex 120 VAC 20ampere power outlets, designated as utility outlets, located every six (6) linear feet along each wall with no more than two (2) fourplex outlets per 20 ampere circuit

3.2.4. Emergency lighting of room and related access hallways with rechargeable batteries with no less than 90 minutes of backup power per 2000 IBC

3.2.5. Average room brightness of 90-100 foot candles

3.2.6. Monitoring systems for power delivered to racks and UPS

3.3. Mechanical Systems Requirements

3.3.1. Adequate, scalable, independent and redundant cooling equipment, including chillers and heating, ventilation, designed for 105 degrees F outdoor ambient, with minimum capacity equivalent to or greater than a Liebert DS unite, model VS035ADCOE|183B, 208 volts, 60Hz, 3-phase, 5000 amps RMS short-circuit current rating, Liebert DS Precision Cooling System with nominal 035 kW (10-ton) air-cooled up flow system with Liebert manufactured outdoor variable frequency drive condenser, model TCDV251-Y

3.3.2. Adequate heating and cooling capable of controlling and sustaining a constant temperature between 68-70 degrees F, dry-bulb temperature between 50-95 degrees F, with 41/20maximum rate of change (degrees F per hour), assuming 6000 kWh with 853,000 BTU/hour heat dissipation

3.3.3. Adequate equipment to control, maintain and sustain humidity range between 48-52% with maximum dew point of 59 degrees F with humidifier capacity of 11 pounds/hour (5kg/hour)

3.3.4. Digital scroll compressors capable of demand-based load-handling downward to 2-ton and expanding to 10-ton

3.3.5. Humidity and temperature monitoring and control with on-demand testing; the availability of console alerts is highly desirable

3.4. Plumbing System Requirements

3.4.1. No water sources traversing, entering or residing in or directly above the data center

3.5. Fire Suppression Requirements

3.5.1. Fire detection and early warning system

3.5.2. Fire suppression monitoring system

3.5.3. Primary chemical (dry powder or gas) fire suppression system

3.6. Security and Access Requirements

3.6.1. One restricted, direct-access, single door entrance to data center space is required, with modifiable electronic locking security mechanism with battery backup, such as an electronic punch pad

3.6.2. A secondary, restricted, direct-access double-door entrance to data center space is required with no center support allowing opening of both doors to provide a large, open, unobstructed entry path when needed

3.6.3. Closed-circuit video with 24/7 surveillance capability

3.6.4. 24/7 security staff on-site

3.6.5. 24/7 access for specified KSDE staff

3.6.6. Unlimited Access cards at no cost

3.6.7. Separate secured enclosure for KSDE network infrastructure

3.6.8. Access process/procedure aligns with KSDE needs

3.6.9. Access monitoring system and reporting tools

3.6.10. Auditable security records

4. Network Infrastructure Requirements

The CSV must provide network infrastructure component capabilities for the KSDE data center network infrastructure which at a minimum meet the following requirements:

4.1. Bandwidth

4.1.1. Bandwidth Burstable 100/1000/10000 Mbps connection

4.1.2. Category 6A wiring system

4.1.3. Real-time bandwidth consumption visibility (multirouter traffic grapher [MRTG])

4.2. Connectivity

4.2.1. Metropolitan Area Network (MAN) connectivity

4.2.2. Unlimited Static IP addresses

4.2.3. Multi-homed capabilities (one or more ISP's for redundancy)

4.2.4. Tier 1 access

4.2.5. N+1 uplinks

4.2.6. Cross-connects

4.2.7. Private VLANs

4.2.8. Cisco powered network backbone

4.3. Availability

4.3.1. 99.999% availability

4.3.2. SLA for 99.999% availability includes monitoring, enforcement & reporting

4.4. Redundancy

4.4.1. Two or more diverse (multi-) carrier routes connected to KANWIN

4.4.2. Redundant communication links between sites

4.4.3. Redundant power feeds

4.4.4. UPS with management software for graceful shutdown of servers during power loss

4.4.5. Standby generator power

4.5. Capacity

4.5.1. Spare capacity (power, cooling, etc.) for unpredicted demand at primary site

4.6. Power

4.6.1. Metered power for co-located equipment

4.6.2. 4 power supplies/rack supported

5. Other Requirements

The CSV must provide additional capabilities regarding support of the KSDE data
center which at a minimum meet the following requirements:

5.1. Reporting/Transparency

5.1.1. Monthly dynamic reporting to KSDE including but not limited to access, QoS, latency, loss, jitter rate, thresholds, consumption, activities, incidents, alerts, exceptions, initiatives

5.1.2. Real-time automated system monitoring tools available to KSDE including but not limited to bandwidth utilization/mapping, traffic routing, SNMP-device, link-state, QoS, packet latency, loss, jitter rates

5.1.3. Facility wiring reports must be provided, maintained and made available as a record at all times

5.1.4. System Pathway/Cable Tracking Reports must be provided, maintained and available at all times. The report shall include systems configuration, unique identifiers, fiber labels, pathways, "as built" details, loss measurements and OTDR traces.

5.2. Communication Plan

To maintain availability of critical KSDE information systems, CSVs responding to this RFP must provide plans and procedures for communication between KSDE and the facility for (a) scheduled, routine and unscheduled maintenance and change management events, (b) unscheduled events affecting uptime and emergency situations, (c) KSDE input to change management and requesting/planning routine maintenance, and (d) building management system modification.

5.3. Service Level Agreements (SLAs)

5.3.1. Defined SLA with historical exceptions provided

5.3.2. Negotiable SLAs

5.3.3. Request, problem and change management engagement methodology defined

5.3.4. Enforceable dispute resolution process

5.4. Staff/Support

5.4.1. Adequate certified technical planning & operational staff/support available

5.4.2. 24/7 onsite monitoring and available expert staff

5.4.3. Dedicated site support team

5.4.4. Tech support (remote=hands on) available normal business hours

5.4.5. Tech support (remote=hands on) available after hours

5.4.6. Defined escalation for support alert

5.4.7. Defined & enforceable standard response time

5.4.8. No off-shore subcontracting for support/services

5.4.9. Key staff profile available

5.5. Facilities

5.5.1. Meeting space at no fee (subject to availability)

5.5.2. Fee-based business continuity & operational support space available

Attachment B – Data Center Equipment List

(Note that this list is not meant to be restrictive and will be updated prior to Co-location Implementation Date)

1. Server Rack 1 – 42 Units available
   a. Dell PowerEdge R410 – 2 @ 1 Unit each
   b. Dell PowerEdge R710 – 4 @ 2 Units each
   c. Dell PowerEdge R720 – 1 @ 2 Units each
   d. Dell PowerEdge R810 – 2 @ 2 Units each
   e. Dell PowerEdge R900 – 1@ 4 Units each
   f. Dell PowerEdge 1950 – 1@ 1 Unit each
   g. KVM Panel – 1 @ 1 Unit each

   Total Units used – 22

2. Server Rack 2 – 42 Units available
   a. Dell PowerEdge R900 – 1@ 4 Units each
   b. MDS 9124 Cisco Fabric Switch – 1 @ 1 Unit each
   c. CISCO ASA 5510 Firewall – 1 @ 1 Unit each
   d. CISCO 2800 Router – 1 @ 1 Unit each
   e. Barracuda Web Filter – 1 @ 1Unit each
   f. Barracuda Spam Filter – 1 @ 1Unit each
   g. AFL Fiber Junction Box – 1 @ 2 Units each
   h. 24 Port CISCO 3700G Switch – 1 @ 1Unit each
   i. Dell PowerEdge R210 – 1 @ 1 Unit each
   j. Dell PowerEdge R900 – 5 @ 4 Units each
   k. Dell PowerEdge 1950 – 1 @ 1 Unit each
   l. Dell PowerEdge 2950 – 1 @ 2 Units each
   m. KVM Panel – 1 @ 1 Unit each

   Total Units used – 37

3. Server Rack 3 – 42 Units available
   a. Dell PowerEdge R710 – 2 @ 4 Units each
   b. Dell PowerEdge R720 – 2 @ 4 Units each
   c. Dell PowerEdge R900 – 1@ 4 Units each
   d. Dell PowerEdge 1950 – 2 @ 2 Units each
   e. Dell PowerEdge 2950 – 3 @ 6 Units each
   f. Dell Power Vault TL4000 – 1 @ 4 Units each
   g. Dell Power Vault MD1200 – 1 @ 2 Units each
   h. Dell Power Vault MD3620f – 1 @ 2 Units each
   i. KVM Panel – 1 @ 1 Unit each

   Total Units used – 29

Total Overall is 3 Server Racks with 88 Units used.